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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,319	05/10/2001	Hiroshi Onaka	064731.0188	5928

7590 02/26/2004
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EXAMINER

NGUYEN, CHAU M

ART UNIT PAPER NUMBER

2633

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,319

Applicant(s)

ONAKA, HIROSHI

Examiner

Chau M Nguyen

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.6.7.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

ETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- a. "74" on line 26, page 11 should be changed to "72".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa Hideki (Hereinafter "Nishizawa") (Japan Pat. No. 2000-059300 A) (Electronic-version translation attached for understanding purpose), in view of Miyamoto et al. (Hereinafter "Miyamoto") (U.S. Pat. No. 6,559,996 B1).

As claims 1 and 5, Nishizawa discloses a system and method for communicating a clock signal over an optical link, comprising:

means (14, fig. 1) for receiving a multimodulated optical information signal comprising phase (non-intensity) modulation for a data signal and clock signal;

means (16) for recovering the clock signal based on the intensity modulation of the multimodulated optical information signal;

means (13) converting the non-intensity modulation for the data signal to intensity modulation for the data signal; and

means (18) recovering the data signal from the intensity modulation for the data signal using the clock signal.

Nishizawa does not clearly show receiving means for receiving intensity modulation for a clock signal. However, Miyamoto (fig. 26) shows the clock signal is intensity modulated by an intensity modulator (31), and the data signal is phase modulated (non-intensity modulated) by a phase modulator (41). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to imply the an intensity modulator and phase modulator for creating a multimodulated optical information signal comprising non-intensity modulation for a data and intensity modulation for a clock signal as taught by Miyamoto and apply this signal into the receiver end of Nishizawa, where the clock signal can be extracted. The one having ordinary skill in the art would have motivated for doing this since, with multimodulation method (phase modulation and intensity modulation), the clock signal and the optical signal will be synchronously communicated between transceiver and receiver. Therefore, no inter-symbol reference occurs under multi-path fading condition due to polarization dispersion in a transmission line (Miyamoto, col. 14, lines 33-39).

As claim 9, Nishizawa discloses an optical receiver (fig. 1), comprising:

an interface (14) for receiving a multimodulated optical information signal comprising phase (non-intensity) modulation (11) for a data signal and a clock signal;

a clock recovery element (16) operable to recover the clock signal based on the intensity modulation of the modulated optical information signal;

a data recovery element (18) operable to recover the data signal from the non-intensity modulation of the multimodulated optical information signal based on the clock signal (Nishizawa, Abstract, Solution).

Nishizawa does not clearly show receiving means for receiving intensity modulation for a clock signal. However, Miyamoto (fig. 26) shows the clock signal is intensity modulated by an intensity modulator (31), and the data signal is phase modulated (non-intensity modulated) by a phase modulator (41). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to imply the an intensity modulator and phase modulator for creating a multimodulated optical information signal comprising non-intensity modulation for a data and intensity modulation for a clock signal as taught by Miyamoto and apply this signal into the receiver end of Nishizawa, where the clock signal can be extracted. The one having ordinary skill in the art would have motivated for doing this since, with multimodulation method (phase modulation and intensity modulation), the clock signal and the optical signal will be synchronously communicated between transceiver and receiver. Therefore, no inter-symbol reference occurs under multi-path fading condition due to polarization dispersion in a transmission line (Miyamoto, col. 14, lines 33-39).

As claims 2, 6 and 10, Miyamoto (fig. 26) indicates the non-intensity modulation comprises a phase modulation of a carrier signal.

As claims 3, 7 and 11, Miyamoto includes the non-intensity modulation comprises a frequency modulation of a carrier signal (col. 13, lines 9-11).

4. Claims 4, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa (Japan Pat. No. 2000-059300 A) in view of Miyamoto (U.S. Pat. No. 6,559,996 B1) as applied in the independent claims 1 and 5, and in further view of Shirakara et al. (Hereinafter "Shirakara") (U.S. Pat. No. 6,618,352 B1).

As claims 4, 8 and 12, by considering the combination system of Nishizawa and Miyamoto as described in the section 3 above in that, the system does not clearly show the data signal is phase shift keyed in the multimodulated optical information signal and the clock signal is intensity shift keyed in the multimodulated optical information signal as cited in the claim invention (claims 4 and 8). However, Shirikara describes the signal data signal is phase shift keyed in the multimodulated optical information signal (col. and the clock signal is amplitude (intensity) shift keyed in the multimodulated optical information signal (col. 2, lines 4-9 and col. 7, lines 23-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to use both phase shift keying and amplitude shift keying methods for both data signal and clock signal as taught by Shirikara into the combination of Nishizawa and Miyamoto in order to calculated the phase difference of the signals. One with ordinary skill in the art would have been known that applying such keying method would have permitted the receiver to be stabled in synchronization and can correct phase error due to frequency error and timing error (Shirikara, col. 23, lines 9-16).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rhee et al. (U.S. Pat. No. 6,606,178 B1) is cited to show method and system to reduce FWM penalty in NRZ WDM system

King (U.S. Pat. No. 5,355,243) is cited to show direct detecting of optical PSK signals.

Ohshima (U.S. Pat. No. 5,483,368) is cited to show an optical communication system.

Bergano (U.S. Pat. No. 5,912,755) is cited to show synchronous polarization and phase modulation for improved performance of optical transmission system.

Roberts et al. (U.S. Pat. No. 6,473,214 B1) is cited to show method and apparatus for optical signal transmission.

Burns et al. (U.S. Pat. No. 5,644,664) is cited to fiber optical transmission system.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau M. Nguyen whose telephone number is 703-305-8965. The examiner can normally be reached on Mon-Fri from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4726. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Application/Control Number: 09/853,319

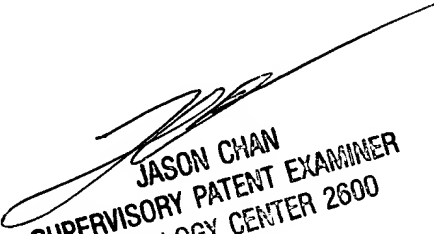
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

C.M.N.

Feb. 18, 2004



JASON CHAN
SUPERVISORY PATENT EXAMINER
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